

Application Serial No.: 10/593,607
Office Action dated: September 28, 2009
Response to Office Action dated: December 22, 2009

AMENDMENTS TO THE DRAWINGS

Please enter Replacement Sheet 1/5 in the drawings.

REMARKS

Status of Claims

In the Office Action dated September 28, 2009:

Figure 8 of the Drawings was objected to for lacking a "Prior Art" label;

Claim 1 was rejected under 35 USC § 120(b) as anticipated by Yajima (U.S. Pat. No. 6,539,986);

Claims 2-5 and 8 were rejected under 35 USC § 103(a) as obvious over Yajima in view of Kawata (U.S. Pat. No. 4,932,353); and

Claims 6 and 7 were rejected under 35 USC § 103(a) as obvious over Yajima in view of Kawata and further in view of Kawano (U.S. Pat. No. 6,258,167).

Claims 1-4 are canceled. Claims 9-12 are added. New claim 9 is an independent claim incorporating the previous recitations of canceled claims 1-3 and the disclosures of FIGS. 3 and 6-7, as described at least in paragraphs 32-41 of the specification. New claims 10-12 incorporate matter disclosed in FIGS. 3 and 6-7 and described at least in paragraphs 30, 31, and 38 of the specification. Claim 5 is amended to depend from new claim 12. Claim 7 is amended to depend from claim 5. No new matter is added. Claims 5-12 are pending.

Objections to the Drawings

Applicant respectfully requests that the objection to Figure 8 be withdrawn in view of the Replacement Sheet submitted herewith.

New Claims

New claims 9-12 are allowable over any combination of Yajima, Kawata, and Kawano for at least the reasons set forth below.

New claim 9 recites a chemical liquid supply apparatus in which chemical liquid is dispensed from a nozzle of a nozzle body, the apparatus comprising a pump having an elastically deformable and tube-shaped flexible film forming a pump room, whose one end communicates with a primary-side flow path communicating with the chemical liquid tank; a nozzle assembly, in which the

pump, a double tube including an internal tube containing the primary-side flow path, and an external tube in which the internal tube is disposed and in which temperature control water flows; and a temperature control water flow path formed in the pump so as to communicate with the external tube.

The structures recited by claim 9 permit controlling the temperature and the viscosity of chemical liquid within the pump room, thereby providing for more accurate dispensing of a predetermined amount of the chemical liquid from the nozzle body, as discussed at least in paragraphs 17 and 19 of the specification. Additionally, the structures recited by claim 9 permit controlling the temperature and viscosity of chemical liquid within the pump room, even while the pump room is disposed immediately above a dispensing position of the chemical liquid supply apparatus, and thereby avoid variability in dispensed amount caused by pumping chemical liquid to a nozzle body through a flexible tube, as described at least in paragraph 18 of the specification.

Yajima teaches a liquid discharging apparatus, including a pump chamber 3 housed in a pump body 1, but does not teach or suggest (i) a double tube including an internal tube and an external tube in which the internal tube is disposed and in which temperature control water flows, (ii) a temperature control water flow path formed in a pump, or (iii) a nozzle assembly in which a pump is disposed, as recited by claim 9. Thus, Yajima does not provide for precisely controlling the temperature and viscosity of chemical liquid within a pump disposed immediately above a dispensing position of a chemical liquid supply apparatus, as provided by the present invention. Thus, Yajima alone fails to teach or suggest the recitations of claim 9.

Kawata teaches a chemical coating apparatus including a heat exchanger 12 disposed along a pipe 9 (see Kawata's Figures 2 and 4), and also teaches a constant-temperature water circulating means 15 for circulating water through the heat exchanger 12 (see Kawata col. 4 lines 40-55). However, Kawata does not teach or suggest any specific structure for moving a chemical coating through Kawata's pipe 9, does not teach or suggest connecting the constant-temperature water circulating means 15 to a pump, and also does not teach or suggest a nozzle assembly in which a pump is disposed.

One of ordinary skill will appreciate that a heat exchanger is easily disposed along a pipe as taught by Kawata, but that a pump (such as Yajima's pump body 1) is not trivially modifiable to include a separate temperature control water flow path. Without specific teaching to connect Kawata's constant-temperature water circulating means 15 to a pump, Kawata fails to teach or suggest modifying Yajima to include (ii) a temperature control water flow path formed in a pump so as to communicate with an external tube of a double tube, as recited by claim 9. Kawata also fails to teach or suggest modifying Yajima to include (iii) a nozzle assembly in which a pump is disposed, as further recited by claim 9. Thus, Kawata does not teach or suggest modifying Yajima to provide for controlling temperature and viscosity of a chemical coating within a pump disposed immediately above a dispensing position of a chemical liquid supply apparatus, as provided by the present invention.

Thus, even the combination of Yajima with Kawata fails to teach or suggest the recitations of claim 9, and fails to provide the technical advantages of the recited structures.

Kawano fails to supply the deficiencies of Yajima and Kawata with reference to claim 9. In particular, Kawano fails to teach or suggest (i) a double tube including an internal tube and an external tube in which the internal tube is disposed and in which temperature control water flows, (ii) a temperature control water flow path formed in a pump, *or* (iii) a nozzle assembly in which a pump is disposed, as recited by claim 9. Thus, Kawano fails to teach or suggest modifying Yajima, Kawata, or any combination thereof to achieve the recitations or the technical advantages of claim 9.

As even the combination of Yajima, Kawata, and Kawano fails to render claim 9 obvious, new claims 9-12 are allowable over any combination of Yajima, Kawata, and /or Kawano.

New claim 10 depends from claim 9 and further recites a first coupling block provided in the nozzle assembly with a first branch flow path formed in the first coupling block, which causes the temperature control water from the external tube to flow into the temperature control water flow path. As even the combination of Yajima, Kawata, and Kawano fails to teach or suggest (ii) a temperature control water flow path formed in a pump, *or* (iii) a nozzle assembly

in which a pump is disposed, the combination of cited references also fails to teach or suggest the specific structure recited by claim 10 for providing temperature control water to a temperature control water flow path formed in a pump disposed in a nozzle assembly.

New claim 11 depends from claim 10 and further recites a second coupling block provided in the nozzle assembly with a second branch flow path formed in the second coupling block, which causes the temperature control water from the temperature controller to flow into the external tube. As even the combination of Yajima, Kawata, and Kawano fails to teach or suggest (ii) a temperature control water flow path formed in a pump, *or* (iii) a nozzle assembly in which a pump is disposed, the combination of cited references also fails to teach or suggest the specific structure recited by claim 11 for returning temperature control water from a temperature control water flow path formed in a pump disposed in a nozzle assembly.

For at least the additional reasons stated above, new claims 10-12 are allowable over any combination of Yajima, Kawata, and / or Kawano.

Rejections made under 35 USC § 103(a)

Claims 5 and 8 were rejected under 35 USC § 103(a) as obvious over Yajima in view of Kawata (U.S. Pat. No. 4,932,353). Claims 6 and 7 were rejected under 35 USC § 103(a) as obvious over Yajima in view of Kawata and further in view of Kawano (U.S. Pat. No. 6,258,167). Applicant respectfully traverses the rejections. As amended herein, claims 5-8 depend from new claim 12. Thus, claims 5-8 are allowable for at least the same reasons stated above with reference to new claims 9-12. Accordingly, Applicant respectfully requests that the rejections of claims 5-8 be withdrawn.

Conclusion

Applicant deems the amended claims allowable over the cited references for at least the reasons stated above. However, if Examiner believes any issue remains outstanding to prevent allowance of the claims presented herein, Applicant respectfully requests that Examiner contact Applicant's Representative so as to expedite resolution of such issues.

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Applicant believes no fees are due in connection with this Amendment and Response. If additional fees are deemed necessary, Applicant's Attorneys hereby authorize the Commissioner to deduct such fees from our Deposit Account 13-0235.

Respectfully submitted,

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